Rec'd PCT/PTG 21 DEC 2004

152) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date 8 January 2004 (08.01.2004)

PCT

(10) International Publication Number WO 2004/003480 A 1

(51) International Patent Classification7: 5/16, G01B 7/30

G01D 5/14,

(21) International Application Number:

PCT/IB2003/002925

(22) International Filing Date:

13 June 2003 (13.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 102 28 663.9

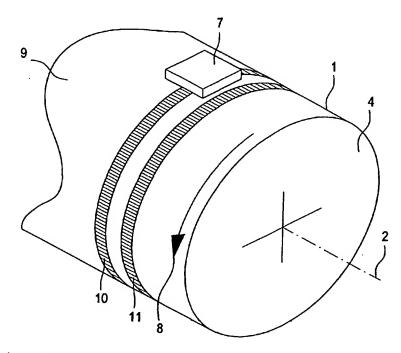
27 June 2002 (27.06.2002) D

- (71) Applicant (for DE only): PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH [DE/DE]; Steindamm 94, 20099 Hamburg (DE).
- (71) Applicant (for all designated States except DE, US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BUTZMANN, Stefan [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). PUSCH, Stefan [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). HINZ, Michael [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). SCHULZ, Gunnar [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). WESER, Marcus [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). STORK, Thomas [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). STORK, Thomas [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE).
- (74) Agent: VOLMER, Georg; Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

[Continued on next page]

(54) Title: ANGULAR DISPLACEMENT ENCODER WITH TWO MAGNETIC TRACKS



(57) Abstract: What is described is a configuration for determining the position of a body along a movement direction, wherein the body is in the form of a magnetized encoder with two magnetic tracks extending, on one surface of the body, along the movement direction, at least essentially in parallel with one another. wherein, at specified intervals along the movement direction, a first of the magnetic tracks exhibits magnetized sections in which the magnetic north poles are aligned so as to be at least largely coincident in a magnetization direction that is essentially at right-angles to the surface of the body, and wherein, at intervals specified to coincide with the above-mentioned intervals along the movement coordinate, the second of the magnetic tracks exhibits magnetized sections in which the magnetic south poles are aligned so as to be at least largely coincident in the said magnetization direction, and wherein, in each case, a magnetized section of one of the magnetic tracks is located at least largely centrally in relation to a gap between two magnetized

sections of the other magnetic track, with a magnetoresistive sensor, in the form of an angle sensor, which is arranged above the magnetic tracks, for determining the directions of magnetic fields brought about by the magnetized sections of the magnetic tracks in an area extending along the movement coordinate, essentially in parallel with the surface of the body. By virtue of the invention, a simple configuration for the precise determination of the position of a body along a movement direction is created, wherein this configuration does not necessarily have to be affixed centrally upstream of the head of the body.